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(54) Title: DEDICATED ENCRYPTED VIRTUAL CHANNEL IN A MULTI-CHANNEL SERIAL COMMUNICATIONS INTERFACE
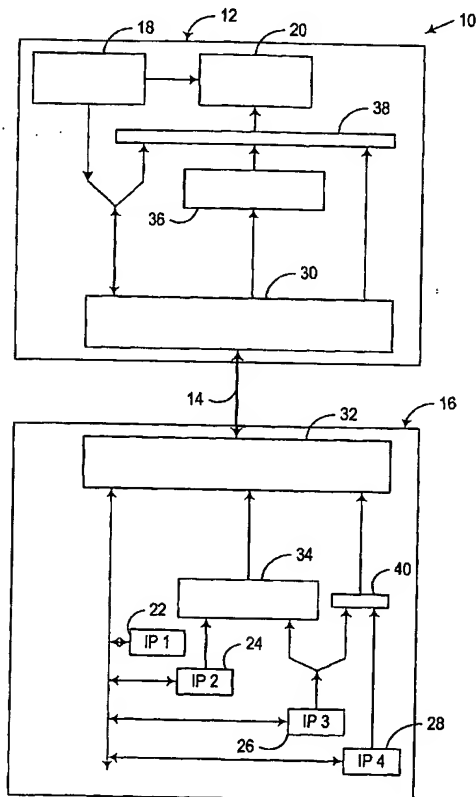
(57) Abstract: A data processing system, circuit arrangement, and method to communicate data over a multi-channel serial communications interface (14) using a dedicated encrypted virtual channel from among multiple virtual channels supported by the communications interface (14). Encryption for the dedicated encrypted virtual channel is provided by a hardware encryption circuit (34) that is coupled to the interface, such that encryption may be performed at a relatively low level, and with substantial protection from compromise, particularly along chip boundaries. In one particular application, access control may be provided for a digital data stream using a multi-chip access control scheme that relies on one chip (148) to provide access control over a received digital data stream, with another chip (150) utilized to process the digital data stram once authorized to do so. A secure, multi-channel serial communications interface between the multiple chips re-encrypts a digital data stream that has been decrypted on the access control chip (148) using hardware encryption logic (162) disposed on the access control chip (148), communicates the re-encrypted digital data steam over a dedicated encryption virtual channel supported by the multi-channel serial communications interface, and decrypts the re-encrypted digital data steam using hardware decryption logic (164) disposed on the other chip (150).

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